

What is claimed is:

1. In a broadband communication system, a method for allocating a communication resource that comprises a communication channel, the method comprising steps of:
5 receiving a communication resource access request at a time that data received via the communication channel is currently being demodulated; and
in response to receiving the communication resource access request, transmitting a grant of access to the communication channel.
- 10 2. The method of claim 1, wherein the access grant is transmitted prior to completion of the demodulation of the data.
3. The method of claim 1, wherein the step of transmitting a grant of access to the communication channel comprises steps of:
15 determining a time that a demodulator will be available;
determining a time that a grant of access to the communication channel can be transmitted based on the time that the demodulator will be available; and
transmitting an access grant based on the received request and on the determined time that the grant of access to the communication channel can be transmitted.
- 20 4. The method of claim 3, wherein the step of transmitting a grant of access to the communication channel further comprises a step of determining a time that the demodulator will finish demodulating the received message.
- 25 5. The method of claim 3, wherein the step of transmitting a grant of access to the communication channel further comprises a step of determining a time interval between the time that the demodulator will be available and the time that an access grant can be transmitted.
- 30 6. The method of claim 1, wherein the communication resource access request is a preamble.

7. The method of claim 1, wherein the access grant is an acknowledgment.

1. What is the purpose of the study?
 2. What are the research objectives?
 3. What is the research methodology?
 4. What are the results of the study?
 5. What are the conclusions of the study?
 6. What are the limitations of the study?
 7. What are the implications of the study?
 8. What are the future research directions?
 9. What are the contributions of the study?
 10. What are the key findings of the study?
 11. What are the main results of the study?
 12. What are the primary outcomes of the study?
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8. An apparatus for allocating a communication resource in a broadband communication system, wherein the communication resource comprises a communication channel, the apparatus comprising:

an access request detector that detects a receipt of a communication resource
5 access request;

a demodulator that is capable of demodulating messages received via the communication channel;

a means for generating a grant of access to the communication channel and the demodulator in response to reception of the communication resource access request; and

10 wherein the communication resource access request is received at a time that the demodulator is engaged in a demodulation of a received message.

9. The apparatus of claim 8, wherein the access grant is generated prior to completion of demodulation of the message.

15 10. The apparatus of claim 8, wherein the a means for generating a grant of access to the communication channel comprises:

a means for determining a time that the demodulator will be available;

20 a means for determining a time of transmission of a grant of access to the communication channel based on the determined time of demodulator availability; and

a means for generating an access grant based on the received communication resource access request and on the determined time of transmission of the access grant.

25 11. The apparatus of claim 10, wherein the means for generating a grant of access to the communication channel further comprises a means for determining a time that the demodulator will finish demodulating the received message.

30 12. The apparatus of claim 10, wherein the means for generating a grant of access to the communication channel further comprises a means for determining a time interval between the time that the demodulator will be available and the time that an access grant may be transmitted.

13. The apparatus of claim 8, wherein the access grant comprises an acknowledgment.
14. The apparatus of claim 8, wherein the communication resource access request comprises a preamble and wherein the access request detector comprises a preamble
5 detector that detects a preamble in a received signal.

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15. A communication device capable of operating in a broadband communication system, the communication device comprising:

a receiver for receiving an communication resource access request;

an access request detector coupled to the receiver that detects a receipt of the
5 communication resource access request;

a demodulator coupled to the receiver that is capable of demodulating messages received via a communication channel;

a means for generating a grant of access to the demodulator in response to reception of the communication resource access request;

10 a modulator for modulating the access grant onto a radio frequency signal to produce a modulated access grant;

a transmitter for transmitting the modulated access grant; and

wherein the communication resource access request is received at a time that the demodulator is engaged in a demodulation of an already received message.

15 16. The communication device of claim 15, wherein the access grant is generated when the demodulator is engaged in a demodulation of an already received message.

17. The communication device of claim 15, wherein the a means for generating a
20 grant of access to the communication channel comprises:

a means for determining a time that the demodulator will be available;

a means for determining a time of transmission of a grant of access to the communication channel based on the determined time of demodulator availability; and

25 a means for generating an access grant based on the received communication resource access request and on the determined time of transmission of the access grant.

18. The communication device of claim 17, wherein the means for generating a grant of access to the communication channel further comprises a means for determining a time that the demodulator will finish demodulating the received message.

30 19. The communication device of claim 17, wherein the means for generating a grant of access to the communication channel further comprises a means for determining a time

interval between the time that the demodulator will be available and the time that an access grant may be transmitted.

20. The communication device of claim 15, wherein the communication resource
5 access request comprises a preamble and wherein the access request detector comprises a preamble detector capable of detecting the preamble.

21. The communication device of claim 15, wherein the access grant comprises an acknowledgment.

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